

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Greg B. Hale, et al. Examiner: Scott Beliveau
Serial No.: 10/692,513 Group Art Unit: 2611
Filed: October 24, 2003 Docket No.: 54317-022501
Title: STREAMING OF DIGITAL DATA TO A PORTABLE DEVICE
Customer No.: 46560

CERTIFICATE OF TRANSMISSION

I hereby certify that this document is being transmitted electronically to the United States Patent and Trademark Office via the EFS Web e-Filing system on June 29, 2006.


Name: Kimberly Wooten

**DECLARATION OF PRIOR INVENTION IN THE
UNITED STATES UNDER 37 C.F.R. § 1.131**

MAIL STOP: AMENDMENT
Commissioner for Patents
Post Office Box 1450
Alexandria, Virginia 22313-1450

As below named inventors, we do hereby declare as follows:

1. This declaration establishes conception and diligence toward the reduction to practice of the invention(s) claimed in this application in the United States, prior to September 3, 2002.
2. All of the documents provided as exhibits to this declaration were created in the United States and/or memorialize events that took place in the United States.
3. This declaration is provided by Greg B. Hale, Phu V. Nguyen, and William G. Wiedefeld. We are the inventors for U.S. Patent Application Number 10/692,513.

4. Before the date of September 3, 2002, we worked on the development of a portable device that receives content data and displays the content data in synchronization with a media presentation. We were all employees of The Walt Disney Company at the time.

5. This work is evidenced in a set of drawings prepared by Phu Nguyen dated April 10, 2002. A copy of the set of drawings is provided in Exhibit A. The drawings illustrate a portable device that can receive and/or send Infrared ("IR") messages from an IR emitter in conjunction with a viewer watching a media presentation. Further, the drawings illustrate an optical time code reader that determines time prompts to be transmitted in the IR messages so that the portable device can be synchronized with the media presentation.

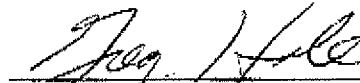
6. This work is further evidenced by a patent disclosure form that we provided on April 19, 2002 to Don Wenskay, who was the in-house patent counsel for The Walt Disney Company at the time. A copy of the patent disclosure form and accompanying memorandum is provided in Exhibit B. The patent disclosure discusses the portable device being utilized in a synchronized manner with a presentation. The set of figures from Exhibit A were attached to and referenced in the patent disclosure form.

7. The evidence also establishes that we diligently pursued development of our invention and its actual or constructive reduction to practice from a date of no later than April 19, 2002, until October 25, 2002, the filing date of our U.S. Provisional Application Serial Number 60/421,255 to which our U.S. Utility Patent Application Serial Number 10/692,513 claims priority. After we contacted Don Wenskay, he asked the law firm of Greenberg Traurig to work with us in the preparation of the provisional patent application. A copy of a fax from Don Wenskay, dated May 21, 2002, with an attached draft of a provisional patent application is provided in Exhibit C. The attached draft of the provisional patent application was prepared by Chris Darrow, a patent attorney at Greenberg Traurig. We worked with Greenberg Traurig between April 19, 2002 and October 25, 2002 to prepare the provisional patent application that was ultimately filed on October 25, 2002. Accordingly, we diligently worked toward actual or constructive reduction to practice of our invention, subsequent to our conception thereof.

8. The integrity of The Walt Disney Company's records and schematics as provided has been maintained since at least April 19, 2002. These records and schematics have not been altered in any way following the date of each entry.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that willful false statements or the like may jeopardize the validity of the application or any patent issuing thereon.

Date: 06/29/2006


GREG B. HALE

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that willful false statements or the like may jeopardize the validity of the application or any patent issuing thereon.

Date: 06/29/2006


PHU V. NGUYEN

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that willful false statements or the like may jeopardize the validity of the application or any patent issuing thereon.

Date: June 29, 2006


WILLIAM G. WIEDEFELD

LA 126566592v1 6/28/2006

EXHIBIT A



Walt Disney World Co.

Ride & Show Engineering

P.O. Box 10,000 • Lake Buena Vista, Florida 32830-1000 • (407) 824-7474

CALCULATION SHEET

PROJECT IR Data Streaming
SUBJECT IR sketch for Theaters. (Movie)
ENGINEER Phu Nguyen DEPT. D&E/74W

CUSTOMER _____
SHEET NO. _____
DATE 4/10/02

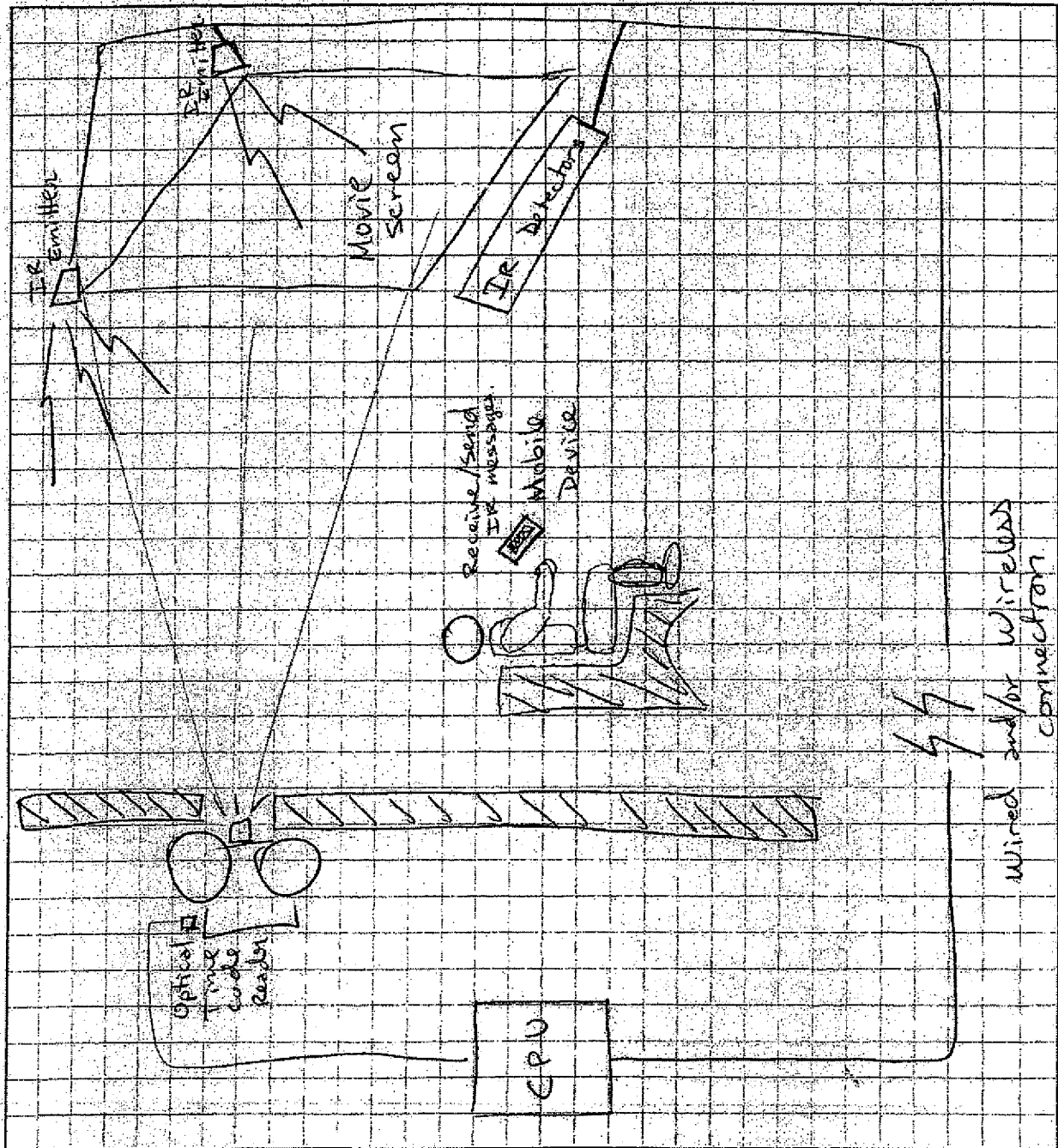


Figure 1



Walt Disney World Co.

Ride & Show Engineering

P.O. Box 10,000 • Lake Buena Vista, Florida 32830-1000 • (407) 824-7474

CALCULATION SHEET

PROJECT RF Data Streaming
SUBJECT RF sketch for Theater (Movie)
ENGINEER Phu Nguyen DEPT. D&E/74w

CUSTOMER _____
SHEET NO. _____
DATE 4/10/02

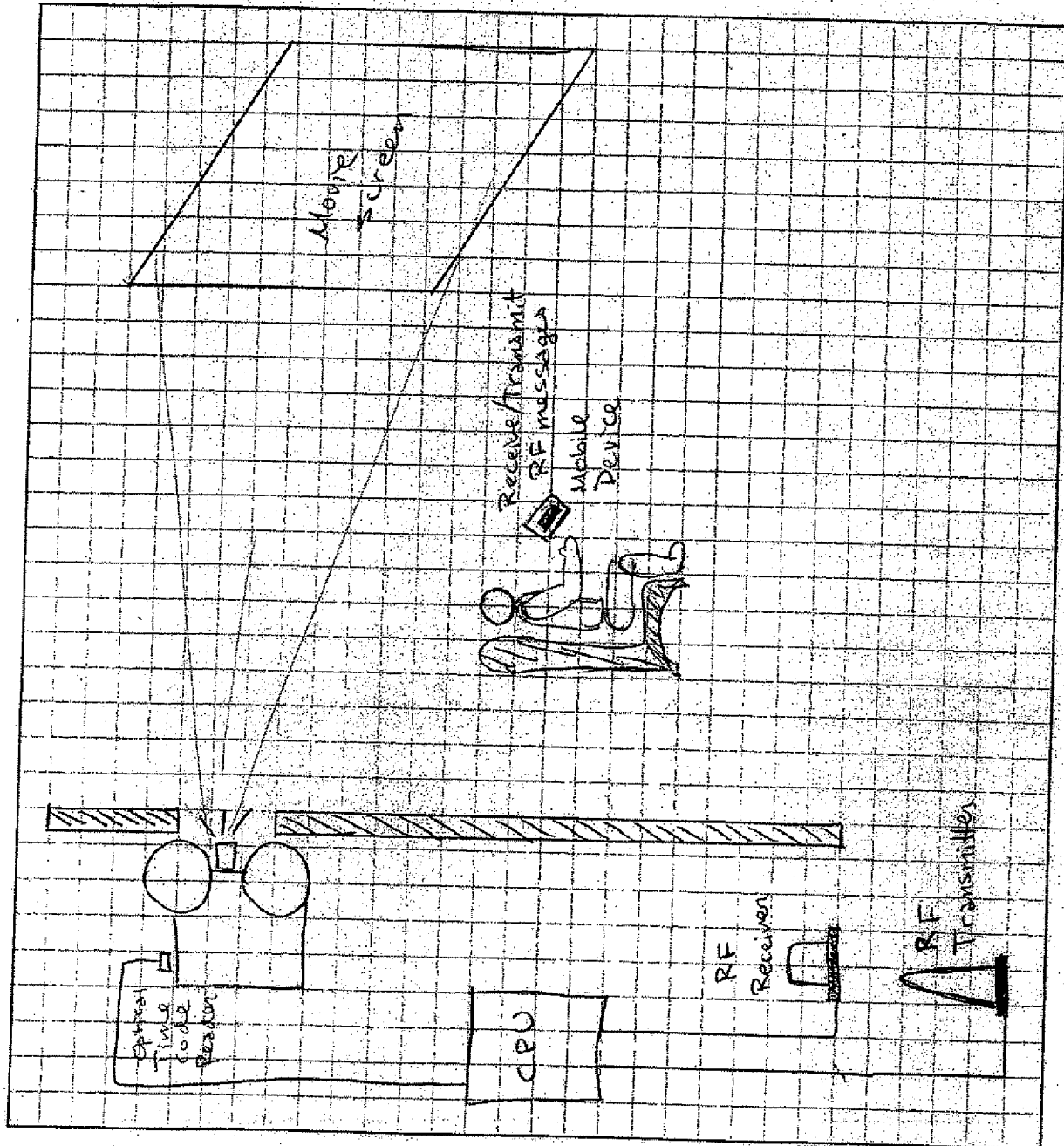


Figure 2



Walt Disney World Co.
Ride & Show Engineering

P.O. Box 10,000 • Lake Buena Vista, Florida 32830-1000 • (407) 824-7474

**CALCULATION
SHEET**

PROJECT IR Data Streaming
SUBJECT Prototype Test Set Up
ENGINEER Phil Nguyen DEPT. D&E/74W

CUSTOMER _____
SHEET NO. _____
DATE 4/10/02

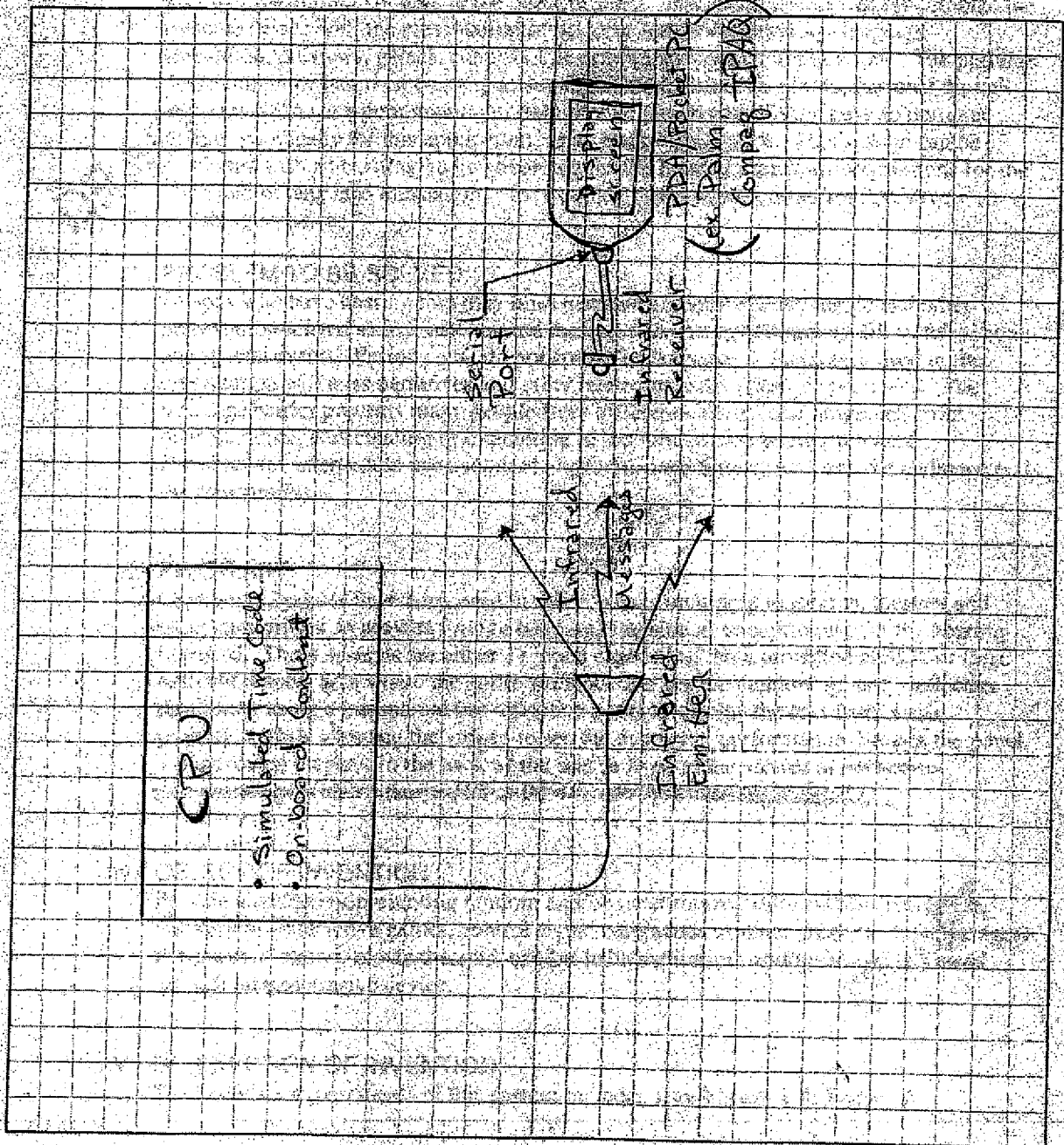


Figure 3

EXHIBIT B



WALT DISNEY World Co..

Memorandum

To: Don Wenskay

Date: ~~April 19, 2002~~

From: Phu Nguyen, P.E.

Phone: 407-824-6506

Subject: WDW Infrared Streaming Digital Data Patent Disclosure

CC: Greg Hale, Tom Craven

Enclosed are the completed and signed Patent Disclosure Statement and Invention Questionnaire for the WDW Infrared Streaming digital data technology. Please review for our meeting on Monday, April 22, 2002. I believe Tom Craven has set up a conference call for us to speak with you.

Attachments



Infrared and/or Radio Frequencies to stream digital data to portable devices in a mass audience or designated broadcast area

I. SUMMARY OF IDEA

Use of infrared (IR) emission and/or radio frequency (RF) transmission to stream data to a portable device for closed captioning, language translation for multi-cultural language groups, previews, games, control of devices and/or similar applications. The portable captioning device could be carried by a person and/or the device could be placed in a fixture for hands free use. Before or at the time of start of a presentation or presentations, the IR/RF system will start the transmission of data to the portable units. The transmission will synchronize the portable device with the presentation or presentations for captioning, language translation, previews, games, control of devices and/or similar applications. The portable device might be based on existing technologies such as mobile phone, personal digital assistant (PDA) or a combination of both mobile phone and PDA, a custom designed device specifically for this application, or an interactive device. This system can be combined with an existing audio streaming for the hearing impaired, descriptions for the blind and/or language translation. (example: Infrared streaming for Assistive Listening Systems)

II. PROBLEM TO BE SOLVED

Persons who have hearing loss may miss narratives, sound effects, music and other presentation related sound material and messages in live performances, films, television and special events. Persons who do not speak the language or languages used in the presentation will miss narratives and other related messages that are presented. The language barrier prevents many people from different cultures and languages from understanding, participating or interacting in the information being presented. Presentations often could use a method to provide interactivity between the audience and the presenter(s).

III. PRIOR ART

Captioning systems have been used in other venues including museums, theaters and other auditoriums to provide foreign language translation or captioning for the hearing impaired. These systems are either 1) 'open captioning' on a projected surface or large adjacent display area where the entire audience can see the captioning, or 2) reflective captioning using a transparent but reflective panel to display the text from a rear projection while allowing the viewer to see the display or performance through the panel, 3) hard-wired displays in the back of the seat in front of the viewer.

IV. OBJECT OF INVENTION

Provide a method of presenting random and/or synchronized information (narratives, translations, interactive games, control signal commands or other show related messages) to patrons of shows, movie theaters, exhibit halls/auditorium and/or designated areas through an unobtrusive device.

V. DESCRIPTION OF INVENTION

The hardware requirements of this system include: (see Figure 1 & Figure 2)

- 1) A time code reader (e.g. optical reader) capable of reading time codes from a show device. (e.g. film projector, show control computer or other media sources)
- 2) A central processing unit (CPU) will receive the time code signal from the reader and synchronize the content (e.g. text captioning, language translation, games and or other related applications) with the film and/or presentation. The central processing unit will have the capability to access the content. The content can reside on the internal memory as part of the central processing unit and/or as a removable memory media.
- 3) The CPU will deliver the synchronized data to the infrared emitters capable of delivering IR messages or control data to the portable device in an indoor/outdoor environment. (plurality: a low-powered licensed and/or non-licensed RF system can also be used to deliver the synchronized data to the portable device via an RF signal)
- 4) The portable display device will have sufficient internal and/or removable memory to allow storage of all data to be presented. The device will also contain infrared ports capable of receiving and/or emitting infrared messages. (plurality: The device could also contain a RF receiver and/or transmitter ports capable of receiving and transmitting RF messages.) The portable device will receive the IR signal and convert the signal to information that can be stored and/or displayed in sync with the presentation. The device may also contain the capability to receive and play audio such as Assistive Listening and/or audio language translations, or program material specific to the presentation.
- 5) The system could also recognize a show/presentation start or end. The system could then transmit random and/or synchronized information to the patrons possessing a device. This will allow the patrons to interact with the device while waiting for the show/presentation to start or after the show/presentation has ended.

VI. TEST DATA OR REDUCTION TO PRACTICE

Working prototypes of the central processing unit, emitter and receiver have been constructed by Walt Disney World Company © Design and Engineering. See **Figure 3**, attached drawings and software code. In this application, we chose to simulate the time code information to the CPU. The CPU then accesses on board content and delivers the synchronized data to the infrared emitters capable of delivering IR messages. A portable device receives the IR messages and converts the IR messages to presentable data. In this instance, the IR receiver is a modification to an existing device such as a PDA (ex: Palm) and/or a pocket PC (ex: Compaq iPAQ) that can store and/or immediately display the data. The IR receiver takes the IR signal from the emitter and translates it to an electronic signal for the serial port of the PDA and/or pocket PC. A terminal software program converts the electronic signal into data that is presented as text on the display screen.

VII. WHAT USE IS PLANNED FOR INVENTION

It is the Walt Disney Company's intention to: 1) make this technology commercially available for application in the movie theater for text captioning and language translation; 2) apply the technology to consumer products which can provide an interactive experience and 3) to provide a wireless link for control signals to equipment, devices or products which are used in public presentations.

VIII. RECORDS

See attachments:

IX. INVENTION QUESTIONNAIRE

Attach completed Invention Questionnaire

X. WITNESS AND DATE*

Inventor (1):
Print Name: Phu V. Nguyen

Signature: *Phu V. Nguyen*

Date: April 19, 2002

Inventor (2):
Print Name: William G. Wiedefeld

Signature: *William G. Wiedefeld*

Date: April 19, 2002

Inventor (3):
Print Name: Greg B. Hale

Signature: _____

Date: April 19, 2002

Inventor (4):
Print Name: _____

Signature: _____

Date: _____

READ AND UNDERSTOOD:

Witness (1): *J. Young*

Date: 4/19/02

Witness (2): William B. Rasher

Date: 4-19-02

* When the invention is joint, all inventors must sign and date the disclosure letter.

EXHIBIT C

Telecopier Cover Sheet

Date: ~~May 21, 2002~~

To: Tom Craven
FAX #: 407-566-5136

To: Greg Hale
FAX #: 407-824-7576

To: Phu Nguyen
FAX #: 407-824-7403

From: Don Wenskay
FAX #: 818-557-8440
Phone: 818-560-8973

Total Number of Pages (including this cover sheet): 6
If you do not receive all of these pages, please call 818-560-8953 or tie line 8228-8953.

Comments

Please review the attached provisional application prepared by Chris Darrow at Greenberg Traurig, LLP and let me know if you have and questions or comments. Note that this document is based on the materials attached to your memo of 4-19-02.

Kindly let me know if there is any additional technical information that should be added.

Thank you.

Don

This message is intended only for the use of the individual or entity to which it is addressed, and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message. Thank you.

PROVISIONAL APPLICATION
STREAMING OF DIGITAL DATA TO A PORTABLE DEVICE

BACKGROUND

1. Field of the Invention

The present invention relates generally to the use of infrared and/or radio frequencies to stream digital data to portable devices in a mass audience or in designated broadcast area.

2. Description of the Background Art

There are several circumstances which may interfere with a person's ability to hear, and thereby interfere with the presentation of information to the listener. For example, persons with hearing loss may miss narratives, sound effects, music and other sound material related to the presentation, and messages in live performances, films, television and special events. Persons who do not speak the language or languages used in the presentation may miss narratives and other related messages that are presented. The language barrier prevents many people from different cultures and languages from understanding, participating or interacting with the information being presented. Background environmental noise may also affect a person's ability to hear, and thereby diminish the effect of the presentation. Additionally, presentations often could be made more effective if they included a method to provide interactivity between the audience and the presenter(s).

Captioning systems have been used in many venues including museums, theaters and other auditoriums to provide foreign language translation or captioning for the hearing impaired. These systems are either 1) "open captioning" on a projected surface or large adjacent display area where the entire audience can see the captioning; 2) reflective captioning using a transparent but reflective panel to display the text from a rear projection while allowing the viewer to see the display or performance through the panel; or, 3) hard-wired displays in the back of the seat in front of the viewer.

It is therefore an object of this invention to provide a method of presenting random and/or synchronized information (narratives, translations, interactive games, control signal commands or other show related messages) to patrons of shows, movie theaters, exhibit halls/auditorium and/or designated areas through an unobtrusive device.

SUMMARY OF THE INVENTION

The present invention makes use of infrared (IR) emission and/or radio frequency (RF) transmission to stream data to a portable device for closed captioning, language translation for multi-cultural language groups, previews, games, control of devices and/or similar applications. The portable captioning device could be carried by a person and/or the device could be placed in a fixture for hands free use. Before or at the time of the

start of a presentation or presentations, the IR/RF system will start the transmission of data to the portable units. The transmission will synchronize the portable device with the presentation or presentations for captioning, language translation, previews, games, control of devices and/or similar applications. The portable device might be based on existing technologies such as mobile phone, personal digital assistant (PDA) or a combination of both mobile phone and PDA, a custom designed device specifically for this application, or an interactive device. This system can be combined with an existing audio stream for the hearing impaired, descriptions for the blind and/or language translation. For example, the invention may provide for infrared streaming for assistive listening systems.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic view of a system of the invention utilizing IR signals.

Fig. 2 is a schematic view of a system of the invention utilizing RF signals.

Fig. 3 is a schematic view of a portable display device receiving an IR signal.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The hardware requirements of the preferred embodiment of this system are depicted in Figs. 1 and 2. A time code reader 10, which in this embodiment is an optical time code reader, is capable of reading time codes from a show device 12 such as a film projector, show control computer or another media source. A central processing unit (CPU) 14 receives the time code signal from the reader 10 and synchronizes the content with the film and/or presentation, which may be a movie screen 15. Examples of content are text captioning, language translation, games and/or other related applications. The central processing unit 14 has the capability to access and interpret the content. The content can reside on the internal memory of the central processing unit 14 and/or as a removable memory media.

The CPU 14 will deliver the synchronized data to the infrared (IR) emitters 16, which are capable of delivering IR messages or control data to a portable device 18, which may be operated either in an indoor or outdoor environment. Alternatively, a low-powered licensed and/or non-licensed radio frequency (RF) system can also be used to deliver the synchronized data to the portable device via an RF signal. Fig. 2 depicts an RF receiver 24 and RF transmitter 22, which interact with a portable RF capable device 24 to achieve the same results as the IR system previously described.

The portable display device 18, 24 has sufficient internal and/or removable memory to allow storage of all data to be presented. All required data may be transmitted to the device 18, 24 in one session for display at predetermined times or upon receipt of a start signal, or the data may be transmitted in a plurality of sessions for display in real time. The device 18 includes infrared ports capable of receiving and/or emitting infrared messages. Messages emitted from the portable display device 18 are read by one or more IR detectors 19. In an alternative embodiment, the device 18 could also contain RF

receiver and/or transmitter ports capable of receiving and transmitting RF messages. The portable device 18 will receive the IR signal and convert the signal to information that can be stored and/or displayed in sync with the presentation. The device 18 and 24 may also contain the capability to receive and play audio such as for assistive listening and/or audio language translations, or program material specific to the presentation.

The system could also recognize show/presentation start and/or end signals. The system could then transmit random and/or synchronized information to the patrons possessing a device. This will allow the patrons to interact with the device while waiting for the show/presentation to start or after the show/presentation has ended.

One possible application of the invention is depicted in Fig. 3. In this application, time code information is read by the CPU 14, which then accesses on board content available in memory, and delivers the synchronized data to the infrared emitters 16, which are in turn capable of delivering IR messages. A portable device 24 receives the IR messages and converts the IR messages to presentable data. In this instance, the IR receiver 19 is a modification to an existing device such as a PDA (for example, a Palm type device) and/or a pocket PC (for example, a Compaq iPAQ) that can store and/or immediately display the data. The IR receiver takes the IR signal from the emitter and translates it to an electronic signal for the serial port 22 of the PDA and/or pocket PC. A terminal software program converts the electronic signal into data that is presented as text on the display screen 26.

This invention may be adapted for uses such as text captioning and language translation in movie or live theaters, consumer products which can provide an interactive experience, and to provide a wireless link for control signals to equipment, devices or products which are used in public presentations.

CLAIMS

1. A method for displaying content data on a readable display in conjunction with a media presentation comprising the steps of:
 - displaying media presentation data, said media presentation data including time prompts;
 - said content data having sequences correlated to the time prompts;
 - detecting the time prompts in the media data; and
 - transmitting to the readable display the sequence of content data associated with a detected time prompt.

The method of claim 1 wherein the transmitting is by way of an IR signal.

The method of claim 1 wherein the transmitting is by way of an RF signal.

The method of claim 1 wherein the transmitting is by way of a wired connection.

The method of claim 1 wherein the media data is prerecorded.

The method of claim 1 wherein the media data is a live performance.

The method of claim 1 further including the step of storing the content data in a memory device.

The method of claim 1 wherein the time prompts are optically readable.

2. A method for presenting content data on a readable display device comprising the steps of:

- providing content data to be displayed at a predetermined time;
- providing time prompts on a film;
- detecting the time prompts on the film;
- correlating content data with the time prompts; and
- at a given time prompt, sending the correlative content data by IR signal to the display device.

3. A method for displaying content data on a readable display comprising the steps of:

- providing content data to be displayed at a predetermined time;
- providing media presentation data having time prompts;
- said content data correlated with the time prompts;
- detecting the time prompts in the media presentation data;
- at a given time prompts, transmitting the correlative content data to the readable display; and
- displaying the content data on the readable display.

4. A method for displaying information on a readable display comprising the steps of:

- storing information to be displayed at a predetermined time;
- displaying media data, said media data including time prompts;
- said information correlated to at least one of the time prompts; and
- at a given time prompt, transmitting the correlative information to the readable display.

5. A method for interactive communication in conjunction with a media presentation comprising the steps of:

- providing a content display device having a readable display;
- storing content data for display;
- presenting media presentation data having time prompts;
- said content data having sequences correlated to the time prompts;
- detecting the time prompts in the media presentation data;
- transmitting to the readable display the sequence of content data correlated with a detected time prompt; and

providing inputs on the content display device adapted to receive information from a viewer.

5. An apparatus for streaming digital data to a portable device during a media presentation comprising:
- a memory device storing the digital data prior to transmission;
 - a readable display on the portable device on which the digital data is displayed after transmission;
 - an IR emitter transmitting the digital data;
 - an IR receiver on the portable device receiving the digital data;
 - time prompts in the media presentation;
 - a time prompt detector;
 - a data processor associating the detected time prompts to the digital data according to predetermined rules; and
 - transmitting digital data correlated with the time prompts from the IR emitter to the IR receiver.

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047	MEMORY TX	

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PAGE RESULT

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ERRORS

1) HANG UP OR LINE FAIL 2) BUSY 3) NO ANSWER 4) NO FACSIMILE CONNECTION

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To: Phu Nguyen
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Phone: 818-560-8973

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